

Remarks

Claims 36-42 were pending in this application prior to entry of the above-amendments. Claims 36, 37, and 38 have been amended. Claims 39, 41, and 42 have been cancelled. Entry of the Amendment and favorable consideration thereof is earnestly requested.

The Applicants' invention is a synthetic organic polymer composition comprising, among other things, a backbone chain, and at least one contact-killing, non-leaching, charged antimicrobial side chain. The antimicrobial side chain is selected from benzalkonium halide compound, quaternary ammonium, pyridinium, and phosphonium salts, and combinations thereof, covalently bound to the polymeric backbone. The resulting polymer may be suitable in a variety of applications such as film and container packaging of foodstuffs, cosmetics, medical equipment and devices, environmental, hygienic and sanitary applications, as well as other consumer and commercial use.

The Examiner has rejected all claims under 35 U.S.C. §102(b) as being anticipated by Sawan (U.S. Patent No. 5,817,325). The rejection is respectfully traversed in light of the amendments above and remarks below, and Applicant respectfully requests that the Examiner reconsider the rejection.

Independent claim 36, as amended, claims a synthetic organic polymer composition, which requires, among other limitations, a backbone chain, and at least one contact-killing, non leaching, charged antimicrobial side chain covalently bound to said backbone chain. Accordingly, the claimed polymer necessarily consists of two identifi-

able constituents, a backbone, and at least one side chain. Of these constituents, claim 36, as amended, further requires that the side chain be specifically selected from the group consisting of benzalkonium halide compound, quaternary ammonium salts, pyridinium salts, phosphonium salts, and combinations thereof. No new matter has been added by this amendment, and applicant directs that Examiner's attention to FIGS. 8(a)-(c) which each show a polymer backbone (1). One of ordinary skill in the art would understand that such a backbone would comprise a one or more monomer units of the polymer. FIGS 8(a)-(c) also show antimicrobial side chain (3). Further support is found at paragraph 123 of the specification.

It is well known in the art that a polymer is a chemical compound or mixture of compounds formed by polymerization and is comprised essentially of repeating structural units. Accordingly, Applicant's claimed polymer has structural units which make up the backbone, and antimicrobial side chain, reacted to form a single polymer particle. It is the antimicrobial side chain(s) - -pendent groups- - which function as, amongst other things, a biocide. Hence, it is the claimed polymer itself which has a side chain having-biocidal properties.

Conversely, Sawan teaches away from a polymer, by teaching a polymer matrix, *plus* a biocide. The matrix has a 2-fold function, to reversibly complex the biocide, and insinuate the biocide into the cell membrane. See Col. 3, line 13-15. Metallic materials such as metal, metal oxide, metal salt, metal complex, or metal alloys are the preferred biocide. See Col. 3, line 45-55. Here, the biocide is not part of any structural unit of the

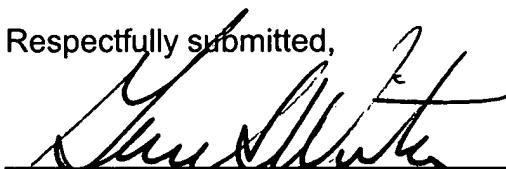
polymer. Since Sawan does not show a polymer having an antimicrobial side chain, claim 36 is not anticipated by Sawan.

Claim 36, as amended, requires at least one contact-killing, non leaching, charged antimicrobial side chain covalently bound to said backbone chain. The claim further requires that the side chain be specifically selected from the group consisting of benzalkonium halide compound, quaternary ammonium salts, pyridinium salts, phosphonium salts, and combinations thereof. Nowhere does Sawan disclose a benzalkonium chloride group positioned as a pendent group on a polymer, such as the claimed invention. In fact, Sawan teaches away from this by disclosing organic materials, including biguanide compounds, and benzalkonium derivatives, make up the matrix, not the biocide. See Col. 8, ln. 23-55. The organic materials are specifically taught as being capable of 1) reversibly binding or complexing with the bactericide. See Col. 8, ln. 26. Accordingly, the organic material or matrix is not polymerized to form polymer having a side chain, rather it is formed into a matrix capable of binding to a biocide. Since, biguanide compounds and benzalkonium derivatives are not taught or suggested as being an antimicrobial side chain, the claimed invention is not anticipated by Sawan.

Applicant respectfully submits that all pending claims, namely Claims 36, 37, 38 and 40 are patentable over the references of record, and earnestly solicits allowance of the same.

Page 9
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Preliminary Amendment Accompanying RCE

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